

## **Title: “Don’t Bounce the Check!”**

### **Brief Overview:**

In this unit the student council will purchase new sports equipment for the school’s gymnasium. The task will be to compare prices for equipment, calculate discounts, keep a running balance of a checkbook based on deposits and withdrawals, and prepare a graph of expenses (spending and deposits). The students also will make decisions regarding money management and cost effectiveness.

### **NCTM 2000 Principles for School Mathematics:**

- **Equity:** *Excellence in mathematics education requires equity - high expectations and strong support for all students.*
- **Curriculum:** *A curriculum is more than a collection of activities: it must be coherent, focused on important mathematics, and well articulated across the grades.*
- **Teaching:** *Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well.*
- **Learning:** *Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge.*
- **Assessment:** *Assessment should support the learning of important mathematics and furnish useful information to both teachers and students.*
- **Technology:** *Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students’ learning.*

### **Links to NCTM 2000 Standards:**

- **Content Standards**

- **Number and Operations**

- Students will work with decimals and percents to solve problems, compare and order decimals, estimate and order costs, compute using percents, and add/subtract/multiply/divide to find the average. A calculator will be used for accuracy and efficiency.

- **Geometry**

- Students will use prior knowledge regarding area to compute prices.

### **Data Analysis and Probability**

Students will create and use appropriate graphical representations of data, demonstrate their ability to organize and display data, and will interpret information obtained.

#### **• Process Standards**

##### **Problem Solving**

The students will determine which sports equipment will be purchased for the gymnasium purchase the equipment by writing checks, and balance a check ledger.

##### **Communication**

The students will write to explain the process of their mathematical computations.

##### **Representation**

The students will represent data in graphs, ledgers, and checks.

#### **Grade/Level:**

Grades 7-8, (Economics)

#### **Duration/Length:**

Five 50-minute class periods

#### **Prerequisite Knowledge:**

Students should have working knowledge of the following skills:

- Estimating, rounding, and finding place value
- Calculating the number from a percent
- Adding, subtracting, multiplying, and dividing decimals
- Comparing decimals
- Creating graphs

#### **Student Outcomes:**

- The students will understand how to keep a running balance of a checkbook.
- The students will be able to create and compare bar graphs.
- The students will calculate percentages and compare prices.
- The students will give verbal and written explanation of the process of balancing a checkbook, creating bar graphs, and calculating percentage.
- Students will be able to calculate and compare costs of sporting equipment.
- Students will be able to write a check using the correct format.

- Students will enter deposit and withdrawal amounts into a checking ledger.
- Students will create a graph and interpret information.
- Students will analyze information from a given graph.

### **Materials/Resources/Printed Materials:**

- Manipulative sheet of checks
- Manipulative sheet of checkbook ledger
- Manipulative sheet of order ledger
- Manipulative sheet of equipment price lists
- Graph Paper
- Paper, pencils, and markers
- TI-73 Calculator (Optional)

### **Development/Procedures:**

N.E. Town Middle School has given the Student Council the task of supplying the gymnasium with equipment. The balance in the Student Council bank account is \$785.00. This is not enough to completely supply a gym with sports equipment, but it is a start. The principal would like the gym to be equipped by the end of April. Monthly deposits will be added to the account as fund- raisers are held at the school. Good luck and spend wisely!

#### **Day 1- “Your Dream Gymnasium”**

Teacher will bring several sports balls and equipment to demonstrate. Engage students in discussion about their favorite sports.

- After reading the problem the students will brainstorm to select items to purchase for their gymnasium.
- Students will prioritize their lists according to most important to least important item.
- Estimate the costs of each item and calculate the total amount of their estimate.
- Students will complete Activity for Day 1.
- Homework for Day 1 will be assigned.

#### **Day 2- “How Much Does it Really Cost?”**

Teacher will make connections from yesterday’s lesson. Discuss any information about costs found on the web.

- Students will compare prices from different stores and calculate discounts for items and calculate the total for each item by completing Activity for Day 2.

- Students will select 10 items to purchase for the gymnasium, record them on the purchase ledger, and calculate the total of their purchases.
- Students will figure the amount of additional funds needed to make purchases.
- Homework for Day 2 will be assigned.

### **Day 3- “Writing a Check”**

Teacher informs the students that today they will learn how to write a check and record transactions in the checkbook ledger. To prepare for today, make one copy of each of practice check/ledger, blank checks #1-12, and ledger. Staple together to form packet.

- Make a transparency of check and ledger.
- Discuss the components of each and identify any unknown terms.
- Hand out the check and ledger packet and give the students an entry to practice the correct format. Example: Make the check out to WalMart...
- Students will write checks in order to purchase equipment (one check per item). Hand out the check work sheet and have students enter their beginning balance in the check ledger. Circulate among students to check for understanding.
- Calculate the ending balance for the day.

### **Day 4- “Recording Withdrawals and Deposits”**

- At the beginning of today give “Check Assessment 1”.
- Distribute packet from yesterday to each student.
- Give each student a deposit to add to their ledger. Balance. Collect packets.
- Students will complete Activity Day 4.

### **Day 5- “Closing the Books”**

- Each team will receive a bank charge for the use of the checking account in the amount of \$4.50. Students enter the amount in their ledger in the correct column and total the balance.
- Teacher will return all but one check to each student. The check that is not returned has not yet cleared the bank. Students will check off all returned checks and double check the deposit amounts.
- Teacher will ask the students to analyze how they would be able to tell how much money they have in the bank that they can use. What happens to the check that was not returned? What would the bank need to communicate to the checking account holder so that a check would not bounce?
- Give Assessment 2.

**Performance Assessment:**

Two performance assessments will be administered, Assessment 1 on Day 4 and Assessment 2 on Day 5. Progress will be assessed using a scoring rubric. Two other daily activities will be assessed using an answer key.

**Extension/Follow Up:**

- Inquire about the cost of opening a checking account at a local bank.
- Schedule an evening with your mother or father to assist them in paying the bills by writing out their checks and helping to balance their checkbook.
- Trace the path of a check once it has been written.
- Continue the check writing process over a two-week time.

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### **Day 1: Activity**

In this activity you will calculate total cost of items including sales tax or discount, commission and interest. Be sure to show all the steps in your calculation.

1. The sales tax in Maryland is 4%. If Tom buys \$85.95 worth of goods how much tax does he pay on his purchases?
2. A salesperson at Sears earns a 6% commission on everything he/she sells. If Clara sold \$796.58 worth of electronics about how much will she earn in commission?
3. A bank offers a loan at a 12% interest rate. If Mary barrows \$6782 from the bank how much interest will she owe?
4. In January, John deposited \$78 in his savings account. He plans to increase the amount he deposits by 5% of the original amount each month. How much will John deposit by the end of May?
5. Ben took out a loan to help pay for his computer. If Ben agrees to pay back \$28.28 a month for the next 24 months, how much will John pay altogether?
6. James paid \$108.38 for 12 gallons of paint. How much does it cost for one can of paint?

### DAY 1: Answer Sheet

1. Cost of goods = \$85.95  
Sales tax = 4%  
Tax =  $4 / 100 \times \$85.95 = \$3.44$
2. Amount of electronics = \$796.58  
Commission = 6 %  
Commission =  $6 / 100 \times 796.58 = \$47.79$
3. Loan = 12%  
Amount borrowed = \$6,782.00  
Interest rate =  $12 / 100 \times 6,782 = \$813.84$
4. Amount deposited in saving account = \$ 78.00  
5% of 78 = \$3.90  
\$3.90 in January, \$3.90 in Feb, \$3.90 in March, \$3.90 in April and \$3.90 in May.  
Total increase =  $\$3.90 \times 5 = \$19.50$   
  
Total  $\$78.00 + \$19.50 = \$97.50$
5. Amount to pay monthly = \$28.28  
Amount to pay in 24 months =  $\$28.28 \times 24 = \$678.72$
6. Amount James paid for 12 gallons of paint.  
Cost of one can of paint =  $\$108.38 / 12 = \$9.03$

**Cost  
Comparison  
Activity Day 2**

Sports Equipment	MJ Sporting	Unit Price	Iversons Sporting Equipment	Unit Price
Basket Ball Nets	3 for \$43.50		2 for \$26.70	
Basket Balls	2 for \$43.90		3 for \$63.15	
Volley Ball	\$16.98 each		2 for 31.98	
Volley Ball Net	\$69.98 @ 30% off		\$65.95 @ 20% off	
Badmitton Racket	4 for \$38.95		3 for \$41.95	
Birdies	3 for \$13.95		3 for 19.95 plus one free	
Badmitton Net	\$48.95 @ 15% off		\$45.95 @ 10% off	
Gymnastics Mats	One 3' X 5' mat for \$76		One 4' X 6' mat for \$85	
Vaulting Horse	\$750 @ 15% off		\$899 @ 20% off	
Balance Beam	\$950 @ 20% off		\$1055 @ 25% off	
Climbing Wall	\$2675 with free shipping		\$2359 plus 15% of purchase price for shipping	
Variety Balls	Bag of four @ \$65		Each ball \$18.99	
Jump Ropes	10 for \$68		20 for \$80.60	
Aerobic Video Tapes	12 for \$83.88		15 for \$90.15	
VCR	\$125 @ 15% off		\$130 @ 10% off	
32" Screen TV	\$525 @ \$50 off		\$720 @ 35% off	



**Answer Key for Unit Price  
Ledger**

Basket Ball Nets	\$14.50/ea	\$13.35/ea
Basket Balls	\$21.95/ea	\$21.05/ea
Volley Balls	\$16.98/ea	\$15.99/ea
Volley Balls Net	\$48.99/ea	\$52.76/ea
Badmitton Rackets	\$9.74/ea	\$13.99/ea
Birdies	\$4.65/ea	\$4.99/ea
Badmitton Net	\$41.61/ea	\$41.36/ea
Gym Mats	\$5.07/sq.ft.	\$3.54/sq.ft.
Vaulting Horse	\$637.50/ea	\$719.20/ea
Balance Beam	\$760/ea	\$719.20/ea
Climbing Wall	\$2675/with free shipping	\$2712.85/with 15% SH
Variety Balls	\$16.25/ea	\$75.96/for four
Jump Ropes	\$6.80/ea	\$4.03/ea
Aerobics Video Tapes	\$6.99/ea	\$6.01/ea
VCR	\$106.25/ea	\$117.00/ea
32" Screen TV	\$475/ea	\$468/ea



## Order Ledger Worksheet

[illegible]

John Doe  
123 American Way  
Anytown, USA 12345

Date: \_\_\_\_\_ 001

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Date: \_\_\_\_\_ 001

For \_\_\_\_\_

Date: \_\_\_\_\_ 002

For \_\_\_\_\_

[illegible]

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 001

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 002

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 003

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 004

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 005

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 006

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 007

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 008

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 009

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 010

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 011

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_

Student Council  
123 American Way  
NE-Town USA 12345

Date: \_\_\_\_\_ 012

Pay to the order of: \_\_\_\_\_ \$ \_\_\_\_\_  
\_\_\_\_\_ Dollars

For \_\_\_\_\_





[illegible]

## Check Assessment 1

<p>Practice Check 123 American Way NE-Town USA 12345</p>	<p>Date: _____</p>	<p>123</p>
<p>Pay to the order of: _____ \$ _____</p> <p>_____ Dollars</p>		
<p>For _____</p>		

Answer the following questions using pencil and paper, calculator, or mental math.

1. A basketball jersey is on sale for 30% off the regular price at MJ Sporting. You have a coupon for an additional \$5 off any one item. The jersey that you want is regularly priced at \$70.85. How much will the jersey cost after all discounts?
  
  
  
  
  
  
  
  
  
  
2. Using the blank check above, write a check for the total purchase price of the jersey in the problem above (include 5% sales tax).

### **Rubric for Assessment One**

3. All entries and balances are correct on the ledger .  
Recording of information is in order and per row.  
Students meets or exceeds all the requirements of the task .
2. Some entries and balance are correct on the ledger .  
Most of the information is in order and per row  
Students meet most of the requirements of the task .
1. Entries and balances are not correct on the ledger .  
Information is not in order .  
Students does not meet the requirements of the task.
0. Entries and balances are not written .  
Information was not recorded .

## Activity Day 4

**Directions:** Refer to the table of sports equipment manipulative sheet to answer the following questions.

1. Make a graph that shows the comparison of sales for the year for the two stores. Use graph paper to construct the graphs.
2. Which two months at Iverson's Sports Equipment had the lowest sales? Which two had the highest?
3. What is the difference between the highest month of sales and the lowest month of sales at Michael Jordan's Sporting?
4. What were the total sales for each store for the year? Which store made the most money?
5. What is the average difference of total sales from the two stores for the year? Write a paragraph explaining to a friend how you found the answer.

### **Answer Key Activity Day 4**

1. Check that an appropriate graph was constructed and that it shows accurate information.
2. Lowest: May & June  
Highest: September & December
3. \$23257.25
4. Iverson's: \$267,493.63      Made the most  
MJ Sporting: \$254,852.70
5. Iverson's Average: \$22,291.14  
MJ Sporting Average: \$21,237.73  
Difference: \$1053.41  
Read explanations for understanding.

## Assessment 2

Read through all entries. Using the ledger provided enter all entries into the checkbook ledger. Make sure they are in the correct order. When you have finished entering each, balance each entry.

Entries:

On August 22<sup>nd</sup> you wrote check #109 to WalMart in the amount of \$15.97.

On August 15<sup>th</sup> your statement came from the bank and you have \$126.45 in your balance.

On September 2<sup>nd</sup> your grandparents gave you a “Back to School” gift of \$75.00.

On September 7<sup>th</sup> you purchased some CD’s at “Music-N-More” with check #111 in the amount of \$33.85.

You received a \$4.50 bank charge at the time of your August balance.

Two days after you received your bank statement you went to Target and purchased some school supplies using check # 110 in the amount of \$35.95.

You owe your best friend \$10. After returning home from “Music-N-More”, you went to his house and wrote out the next check in order to pay him back.

## **Day 1**

### **Homework**

1. Students will browse the Internet and find out the prices of equipment to be bought for the gymnasium. They will compare prices from different stores and choose the best buy.
2. The original price of a basketball was \$12.70, it had a 15% discount, find the sale price.
3. If a dozen sport tea-shirts cost \$56.78, find the price of one tea-shirt.



## **Day 2**

### **Homework**

1. At a rock concert, 2,356 face caps were sold at \$9.75 each. Find the cost of all items sold.
2. David has just bought a new car. He received a \$1,200 credit for his trade-in. He gave the car dealer a \$3,600 down payment and is making 36 monthly payments of \$258.00 each. What is the total cost of the car?
3. Mary wants to leave a 12% tip for the waiter at a restaurant. Find how much she should leave if the meal cost \$24.69?
4. Steve wants to buy a volleyball net that costs \$19.45. The sales tax is 4%. What is the total cost for the volleyball?

### **Day 3**

#### **Homework**

1. Sketch and label a check leaf. They will explain the meaning and importance of three of the features labeled.
2. Write the procedures for entering and balancing a check ledger. Be sure to show examples.

## Day 4

### Homework

1. Construct a bar-graph to illustrate the favorite sports of Middle School students. Use the information listed below.

#### Favorite Sports of Middle School Students.

<i>Sport</i>	<i>Number of Students</i>
Football	120
Basketball	250
Volley ball	80
Soccer	50
Athletics	30

2. Tom had \$1257.25 in his saving account. He deposited \$82.00 after buying two pairs of pants at \$16.38 each. How much will he now have in his saving account ?

### Homework Answer sheet

- Day 1:**
2. Discount = 15 %,  $15\% \times \$12.70 = \$1.90$   
 $\$12.70 - \$1.90 = \$10.80$
  3. \$4.73/each
- Day 2:**
1. \$22,971
  2. \$14,088
  3. \$2.96
  4. \$20.23
- Day 3:**
1. Check sketches
  2. Check explanations for completeness
- Day 4:**
1. Check Bar Graphs for accuracy
  2. \$1306.49